

Remarks

Telephonic Interview:

Applicants thank Examiner Bui for the helpful comments and assistance during the telephone interview held August 27, 2010. In summary, the Examiner indicated independent claim 59 drawn to recited NFR5 polypeptide sequences to be allowable and that independent claim 60 drawn to recited NFR1 polypeptide sequences would be allowable if sequences 52 and 54 were presented in a new claim reciting “at least 90%” sequence identity. The claims have been so amended. Claims 59, 60, and new claim 122 are therefore in condition for allowance. All additional pending claims depend from one of claims 59, 60, or 122, and accordingly are in condition for allowance.

Examiner Bui also noted the number of new claims added after final action must be matched by an equal number of cancelled claims. A total of 12 new claims have been added and a total of 12 previously presented claims have been deleted, as discussed below.

The claims as amended have been reviewed for errors. Entry of the claim amendment, removal of all rejections, and allowance of all pending claims are respectfully requested.

Claim Amendments:

The following claims are amended: 59, 60, 62, 65, 66, 68, 69, 72, 73, 74, 85, 88-91, 101, 110.

The following new claims are added: 122-133.

The following claims are cancelled: 105, 107-109, 111, 113-115, 117, 119-121.

Accordingly, Claims 59- 104, 106, 110, 112, 116, 118, and 122-133 are pending on entry of this Amendment.

Claims 63, 64, 75, 76, 83-87, 92-95, 97-99, 102-105, 108-109, 114-117, 120-121 were previously indicated allowable by the Examiner.

Claim 59 is amended to delete a space between “48” and a following comma, and to insert “to” between “identity” and “any.”

Claims 60, 62, 73, 89, and 101 are amended to delete reference to amino acid sequences SEQ ID NO: 52 and 54.

Claims 65, 66, 69, and 72 are amended to replace “protein” with “polypeptide” to follow antecedent language. Claims 85 and 88 are amended to replace “protein” with “polypeptide” for consistency with preceding claims.

Claims 68, 74, and 90 are amended to delete reference to nucleic acid sequences SEQ ID NO: 51 and 53 that encode amino acid sequences SEQ ID NO: 52 and 54.

Claim 91 is amended to replace reference to claim 60 in this combination claim with the particular SEQ ID NO: 24, 25, 52, or 54. Claims to a combination of claim 59 and original claim 60 were previously indicated allowable.

Claim 110 is amended to replace “cereal” with “legume” as recited in previously presented claims 111-115. Claim 110 is no longer redundant with claim 104.

New claim 122 recites a Nod-factor binding polypeptide comprising at least 90% amino acid sequence identity to SEQ ID NO: 52 or 54. New claims 123-126 each depend from new claim 122.

New claims 127-133 each recite a transgenic plant comprising a transgene encoding a polypeptide comprising a particular amino acid. New claims 127-132 each depend from

claim 98 which requires the polypeptide of claim 59. New claim 133 depends from claim 100 which requires the polypeptide of claim 60.

No new matter has been added by this Amendment. The claims have been amended in keeping with the Examiner's suggestions of allowable subject matter.

Cancellation of the claims noted above is solely for purposes of matching the number of cancelled claims to number of new claims presented after final action.

Entry of this Amendment and allowance of all the claims is respectfully requested.

Specification:

The Examiner requested updating of the specification to reflect changes in newly submitted drawings. Applicant draws the Examiner's attention to the Amendment filed February 16, 2010, where the following sentence was deleted in the brief Description of the figures for Figure 3: "Amino acid residues sharing identity are highlighted."

The specification was carefully reviewed for additional text describing Figures 2, 3, and 5. With this Amendment, the specification has been amended to conform to the Figures.

Claim Objections:

Correction of informalities in claims 59, 91, 96, 110 and 111 was suggested to remove Examiner's objections to the claims: In claim 59, the Examiner suggests "to" should be inserted before "any". With this Amendment, claim 59 has been amended as suggested by the Examiner. Claim 91 has been amended to remove dependency from two claims. Claim 110 has been amended to replace the word "cereal" with "legume". Claim 111 has been cancelled. With the amendments discussed above, these claims are considered to be in allowable form.

Claim Rejections - 35 USC § 112, second paragraph:

Claims 65-74 and 77-82 were rejected under 35 U.S.C. 112, second paragraph, as indefinite, citing claims 65, 66, 69, and 72 as lacking antecedent basis for the term, “protein”. Claims 65, 66, 69, and 72 have been amended to refer to replace “protein” with the term “polypeptide”. Claims 65-74 and 77-82 are considered to be in allowable form. Removal of this rejection is respectfully requested.

Claim Rejections - 35 USC § 102:

A. Anticipation by Madsen

Claims 59, 61, 65, 67 and 69-71 were rejected under 35 U.S.C. 102(a) as anticipated by Madsen *et al.*, 2003 (*Nature* 425:637-640). The Examiner notes that Madsen teaches sequences having 100% identity to SEQ ID NOs: 6-8, 11, 12, 15, 30 and 31; and 87% identity to SEQ ID NO: 32.

Applicant respectfully traverses this rejection. Madsen was published on October 9, 2003 after the priority date of July 3, 2003. The two priority documents (Danish application and U.S. provisional application) each disclose SEQ ID NOs: 6-8, 11, 12, 15, 30, 31, and 32. SEQ ID NO: 32 is shown, for example, in Figure 3 (*M.t.*). Page 9 of the provisional application explains Figure 3 is the aligned amino acid sequence of LjNFR5, PsSYM10, and *Medicago truncatula*. Applicants’ 2003 priority claim is clear on the documents as filed, including paragraph [0001] of the specification, and on the USPTO filing receipt.

Because sequences 6-8, 11-12, 15 and 30-32 were disclosed in the priority documents before the publication of Madsen, Applicants assert Madsen is not prior art to the instant claims. Claims 59, 61, 65, 67 and 69-71 are considered to be in allowable form. Removal of this rejection is respectfully requested.

B. Anticipation by Radutoiu

Claims 60, 62, 66, 68, 72-74, 80-82, 88-90, 100, 101, 106, 107, 118 and 119 are rejected under 35 U.S.C. 102(a) as being anticipated by Radutoiu *et al.*, 2003 (*Nature* 425:585-592). The Examiner notes that Radutoiu teaches sequences having 100% identity to SEQ ID NOS: 21-24 and 99% identity to SEQ ID NO:25.

Radutoiu was published in October 9, 2003 after Applicant's provisional application was filed on July 3, 2003. SEQ ID NOS: 21-25 were all disclosed in the priority documents (Danish application and U.S. provisional application), for example, in the Sequence Listing provided. Because sequences 21-25 were disclosed in the provisional application before the publication of Radutoiu, Applicant asserts that Radutoiu is not prior art to the instant claims.

Accordingly, the claims are considered to be in allowable form. Removal of this rejection is respectfully requested.

C. Anticipation by Limpens

Claims 60, 66, 72, 80, 88, 100 and 112 are rejected under 35 U.S.C. 102(a) as being anticipated by Limpens *et al.*, 2003 (*Science* 302:630-633 (previously cited)). The Examiner asserts "Limpens teaches a sequence which has 85% [identity] to SEQ ID NO:54." Examiner notes that SEQ ID NO: 54 was first disclosed in the instant application, and accords priority for this sequence as July 2, 2004, the filing of the PCT application (reciting the sequence).

To speed prosecution, Applicants amended the claims to require at least 90% amino acid sequence identity to SEQ IDs 52 and 54. Support for this amendment is found at least at page 6 of the specification:

“Substantially identical refers to two nucleic acid or polypeptide sequences that have at least about 60%, preferably about 65%, more preferably about 70%, more preferably about 70%, further more preferably about 80%, most preferably about 90% or about 95% nucleotide or nucleic acid identity when aligned for maximum correspondence over a comparison window as measured using one of the sequence comparison algorithms given herein, or by manual alignment and visual inspection.” Page 6, paragraph [0067]

Conclusion:

In conclusion, Applicants priority documents were each filed on July 3, 2003. As such, references dated after July 3, 2003 are not prior art to the sequences disclosed in the prior art documents (SEQ ID NOs: 1-32). Removal of rejections based on the inventors' publications, *Madsen* 2003 and *Radutoiu* 2003 are respectfully requested.

Limpens 2003 is cited for disclosing a sequence that has at least 80% sequence identity to SEQ ID NO: 54. SEQ ID NOs: 52 and 54 are first disclosed in the PCT publication filed July 2, 2004. Applicants have amended the claims to require at least 90% amino acid sequence identity to SEQ ID NOs: 52 or 54. *Limpens* does not disclose or suggest a sequence having at least 90% amino acid sequence identity to SEQ ID NOs: 52 or 54. Removal of rejections based on the *Limpens* reference is respectfully requested.

In view of the amendments and remarks, entry of the amendments and remarks is respectfully requested. All of the claims in this amended application should now be in condition for allowance. A prompt notice to that effect is respectfully solicited. If there are any remaining questions, the Examiner is requested to contact the undersigned at the number listed below.

Respectfully submitted,

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